

REMARKS

Claims 1-2, and 4-16 are now pending in the application. Claim 14 has been withdrawn from consideration. Claim 3 has been canceled without prejudice or disclaimer. Claim 1 has been amended, and new claims 15 and 16 added, without introduction of new matter. Favorable reconsideration is respectfully requested in view of the above amendments and the following remarks.

Claims 1-6 and 9 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Geddes et al. (US Patent No. 5,263,198). This rejection is respectfully traversed.

Claim 1 has been amended to now further recite all of the features defined by claim 3. Claim 3 has therefore been canceled without prejudice or disclaimer in order to avoid the presence of redundant claims. Claim 4 has been amended so that it now depends from claim 1 instead of from (now canceled) claim 3.

The Geddes et al. patent does not anticipate Applicants' claimed mixer at least because it neither discloses nor suggests:

A passive mixer for converting a first signal having a first frequency to a second signal having a second frequency, comprising:

mixing means, a first terminal, a second terminal and a third terminal, for providing the second signal by mixing a third signal having a third frequency provided as input at said second terminal and the first signal provided as input at either the first or the third terminal; and

a feedback circuit operatively connected to said third and said second terminal,

wherein the feedback circuit comprises a low pass filter.

(Emphasis added.)

As explained in Applicants' specification at, for example, page 9, lines 5-17, "To take care of the non-linearity problem of the prior art, the feedback circuit 150 will cause the gate voltage to follow the low frequency output potential variations. The feedback filter 160 is adapted to pass a low-frequency difference component (RF-LO) of the IF signal, and filter out a high frequency addition component (RF+LO) of said IF signal. The low-frequency component will be fed to the gate of the transistor 111, which will be modulated by the low

frequency component of the IF signal together with the LO signal. By providing the bootstrapping feedback circuit 150, the transistor will be independent of the high-frequency component of the IF signal, which makes the mixer 100 more linear.”

By contrast, Geddes et al. seek to achieve a different purpose, namely, to reduce the RF to LO leakage of a passive mixer. See, e.g., Geddes at column 2, lines 18-24. The leakage is caused by the parasitic capacitance between the gate and drain terminals of the transistor, wherein the LO is connected to the gate and RF to the drain. In solving this different problem, Geddes et al. have produced an arrangement that lacks important features defined by Applicants’ claims.

The Office relies on Geddes et al.’s disclosure of “DC blocking filter 16” as corresponding to Applicant’s feature “wherein the feedback circuit comprises a low pass filter.” (See the Office’s comments regarding now-canceled claim 3.) This reliance is unfounded because the DC blocking filter 16 (shown in Geddes et al. as a capacitor in series between the drain and gate terminals of the transistor) cannot be considered a “low pass filter.” It is well-known in the art that a low pass filter will pass low frequency signals while attenuating signals with frequencies higher than the cutoff frequency. Geddes et al.’s arrangement fails to do this: Rather than passing low frequencies, the DC blocking filter 16 would serve to block them, with less attenuation being applied to higher frequency signals.

For at least the foregoing reasons, independent claim 1 is believed to define subject matter that is patentably distinguishable over that which is disclosed by Geddes et al.

The remaining claims 2 and 4-6 and 9, which inherit the features defined by independent claim 1, are believed to be patentably distinguishable over the Geddes et al. patent at least for the reasons set forth above. Other features defined by these claims further distinguish over Geddes et al.

For example, claim 4 defines “The mixer according to claim 1, wherein the filter comprises a capacitor connected between said second terminal and said mixing means, and a resistor connected between said third terminal and the connection between said capacitor and said mixing means.” Although Geddes et al.’s Figure 2 discloses (and the Office’s rejection relies on) a capacitor 80 connected between a second terminal and the mixing means, and a resistor 20 connected between a third terminal and the connection between the capacitor and the mixing means, these components do not seem to form a low pass filter, since the matching network 12 and DC blocking filter 16 are inserted in-between the components and terminals.

In view of the foregoing, claims 1-2, 4-6 and 9 are believed to define subject matter that is patentably distinguishable over the prior art of record. It is therefore respectfully requested that the rejection of these claims under 35 U.S.C. §102(b) be withdrawn.

Claims 7, 8, and 10-13 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Geddes et al. This rejection is respectfully traversed.

Each of dependent claims 7, 8, and 10-13 has independent claim 1 as a base claim. Therefore, these claims are patentably distinguishable over the Geddes et al. patent for at least the same reasons as those set forth above with respect to claim 1.

In view of the foregoing, claims 7, 8, and 10-13 are believed to be patentably distinguishable over the prior art of record. Accordingly, it is respectfully requested that the rejection of these claims under 35 U.S.C. §103(a) be withdrawn.

New claims 15 and 16 have been added without introduction of new matter. Support for claim 15 can be found in the specification at, for example, Figure 3 and page 8, lines 12-21. Support for the features of claim 16 can be found in the specification at, for example, Figure 2, in which an RF signal 120 is applied to a first terminal of a mixer 110, an IF signal 140 is generated at a third terminal of the mixer 110, and a local oscillator signal is applied to a second terminal 130 of the mixer 110.

Claims 15 and 16, each of which depends from claim 1, are believed to be patentably distinguishable over the prior art of record for at least the same reasons as those set forth above with respect to claim 1.

Moreover, with the arrangement as defined by claim 16, the feedback circuitry, which according to base claim 1 is “operatively connected to said third and said second terminal”, feeds a low frequency IF signal back to the terminal that also receives the local oscillator signal. The Geddes et al. patent fails to disclose or suggest this since, in Geddes et al., the feedback circuit is associated with the RF-terminal and the local oscillator terminal.

The application is believed to be in condition for allowance. Notice of same is respectfully requested.

Respectfully submitted,
Potomac Patent Group PLLC

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By: /Kenneth B. Leffler, Reg. No. 36,075/
Kenneth B. Leffler
Registration No. 36,075

P.O. Box 270
Fredericksburg, Virginia 22404
703-718-8884